INCOMING CALL CONTROL BASED ON THE MOVING SPEED OF A RADIO COMMUNICATIONS APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to a radio communications apparatus used in a radio communications system such as a cellular system and a PCS (Personal Communications Service), and a method for controlling an incoming call in the radio communications apparatus.

A radio communications system, such as a cellular system and a PCS, has recently been improved further in convenience according to an increase in base stations and telephone lines, whereas the danger in using it in a car which a user is driving and the bad manners in which a user uses it in a train, have become a social problem.

A prior art radio communications apparatus has a so-called hand-free function which allows a user to speak without taking the terminal apparatus in order to insure safety while the user is driving a car. The radio communications apparatus also has an answering function, and a vibration call function of notifying a user of an incoming call by vibration in place of a tone indicative of the incoming call, in order to have good manners in a train.

In the prior art radio communications apparatus having the above functions, however, it is very troublesome for a user to set the functions whenever the user drives a car or rides on a train, or to clear them when the user does not drive or ride on the train.

BRIEF SUMMARY OF THE INVENTION

It is accordingly an object to provide a radio communications apparatus capable of insuring safety in driving a car and having good manners in a train without switching a function in accordance with user's situations, and a method for controlling an incoming call in the radio communications apparatus.

To attain the above object, according to one aspect of the present invention, there is provided a radio communications apparatus connectable through a radio channel and a radio base station connected to a public network, comprising:

- moving speed detection means for detecting a moving speed of the terminal apparatus from a fading pitch of a received signal; and
- incoming call control means for controlling an incoming call in accordance with a detection result of the moving speed detection means.

The radio communications apparatus further comprises voice data storage means for storing a voice message. In this apparatus, the incoming call control means responds to the incoming call and transmits the voice message stored in the voice data storage means to a communication party when the moving speed detected by the moving speed detection means is higher than a preset speed level.

In the radio communications apparatus, the incoming call control means responds to the incoming call, transmits the voice message stored in the voice data storage means to a communication party, and records voice data sent from the communication party in the voice data storage means, when the moving speed detected by the moving speed detection means is higher than a preset speed level.

In the radio communications apparatus having the above constitution, while a user is moving at high speed, for example, when he or she drives a car or rides on a train, the apparatus automatically responds to an incoming call and transmits a predetermined message to a communication party or stores a message from the communication party.

It is thus possible for the user to insure safety in driving a car and have good manners in a train without switching a function of the apparatus whenever the user gets on and off the car or train.

Furthermore, the radio communications apparatus according to the present invention further comprises voice data storage means for storing a voice message and a mode selection means for selecting a first mode and a second mode. In this apparatus, the incoming call control means does not control a notification of the incoming call when the moving speed detected by the moving speed detection means is higher than a preset speed level and the first mode is selected by the mode selection means, and responds to the incoming call and transmits the voice message stored in the voice data storage means to a communication party when the second mode is selected by the mode selection means.

The radio communications apparatus of the present invention further comprises voice data storage means for storing a voice message and a mode selection means for selecting a first mode and a second mode. In this apparatus, the incoming call control means does not control a notification of the incoming call when the moving speed detected by the moving speed detection means is higher than a preset speed level and the first mode is selected by the mode selection means, and responds to the incoming call, transmits the voice message stored in the voice data storage means to a communication party, and records voice data sent from the communication party in the voice data storage means when the second mode is selected by the mode selection means.

Consequently, according to the apparatus having the above constitution, while a user is moving at high speed, an incoming call control operation can be performed in accordance with a mode preset by the mode selection means.

The radio communications apparatus according to the present invention further comprises non-response incoming call notification means for notifying a user of an incoming call to which the user does not respond when the incoming call control means responds to the incoming call.

In this apparatus, when there is an incoming call to which the incoming call control means responds in place of a user, the user can be notified of the call.

The radio communications apparatus further comprises vibration means for generating a vibration. In this apparatus, the incoming call control means controls an operation of the vibration means and notify a user of an incoming call when the moving speed detected by the moving speed detection means is higher than a preset speed level.

According to the apparatus having the above constitution, since an incoming call notification method is automatically changed to a vibration notification method while a user is moving at high speed in a train or a bus, the user does not annoy the other passengers with a tone of the incoming call without switching a function of the notification means whenever the user gets on and off the car or train.

In the radio communications apparatus, the moving speed detection means detects a power level of the received signal and detects a fading pitch of the received signal from the power level thereby to obtain a moving speed of the apparatus.

In the radio communications apparatus, the moving speed detection means includes:

- power level detection means for detecting a power level of the received signal;
- fading determination means for comparing the power level detected by the power level detection means with